

SEQUENCE LISTING

<110> ISTITUTO SUPERIORE DI SANITA

<120> USE OF MICROPARTICLES FOR ANTIGEN DELIVERY

<130> N.89060A JHS

<160> 55

<170> PatentIn version 3.2

<210> 1

<211> 309

<212> DNA

<213> Human immunodeficiency virus

<220>

<221> CDS

<222> (1)..(309)

<400> 1

atg	gag	cca	gta	gat	cct	cgt	cta	gag	ccc	tgg	aag	cat	cca	gga	agt	48
Met	Glu	Pro	Val	Asp	Pro	Arg	Leu	Glu	Pro	Trp	Lys	His	Pro	Gly	Ser	
1				5				10						15		

cag	cct	aaa	act	gct	tgt	acc	aat	tgc	tat	tgt	aaa	aag	tgt	tgc	ttt	96
Gln	Pro	Lys	Thr	Ala	Cys	Thr	Asn	Cys	Tyr	Cys	Lys	Lys	Cys	Cys	Phe	
			20					25					30			

cat	tgc	caa	gtt	tgt	ttc	ata	aca	aaa	gcc	tta	ggc	atc	tcc	tac	ggc	144
His	Cys	Gln	Val	Cys	Phe	Ile	Thr	Lys	Ala	Leu	Gly	Ile	Ser	Tyr	Gly	
		35					40					45				

agg	aag	aag	cgg	aga	cag	cgt	cga	aga	cct	cct	caa	ggc	agt	cag	act	192
Arg	Lys	Lys	Arg	Arg	Gln	Arg	Arg	Arg	Pro	Pro	Gln	Gly	Ser	Gln	Thr	
	50					55					60					

cat	caa	gtt	tct	cta	tca	aag	caa	ccc	acc	tcc	caa	tcc	cga	ggg	gac	240
His	Gln	Val	Ser	Leu	Ser	Lys	Gln	Pro	Thr	Ser	Gln	Ser	Arg	Gly	Asp	
65					70					75					80	

ccg	aca	ggc	ccg	aag	gaa	cag	aag	aag	aag	gtg	gag	aga	gag	aca	gag	288
Pro	Thr	Gly	Pro	Lys	Glu	Gln	Lys	Lys	Lys	Val	Glu	Arg	Glu	Thr	Glu	
				85				90						95		

aca	gat	ccg	gtc	cat	cag	tga										309
Thr	Asp	Pro	Val	His	Gln											
			100													

<210> 2

<211> 102

<212> PRT

<213> Human immunodeficiency virus

<400> 2

Met	Glu	Pro	Val	Asp	Pro	Arg	Leu	Glu	Pro	Trp	Lys	His	Pro	Gly	Ser
1				5				10						15	

Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe
20 25 30

His Cys Gln Val Cys Phe Ile Thr Lys Ala Leu Gly Ile Ser Tyr Gly
35 40 45

Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Ser Gln Thr
50 55 60

His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Arg Gly Asp
65 70 75 80

Pro Thr Gly Pro Lys Glu Gln Lys Lys Lys Val Glu Arg Glu Thr Glu
85 90 95

Thr Asp Pro Val His Gln
100

<210> 3
<211> 261
<212> DNA
<213> Human immunodeficiency virus

<220>
<221> CDS
<222> (1)..(261)

<400> 3
atg gag cca gta gat cct cgt cta gag ccc tgg aag cat cca gga agt 48
Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser
1 5 10 15
cag cct aaa act gct tgt acc aat tgc tat tgt aaa aag tgt tgc ttt 96
Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe
20 25 30
cat tgc caa gtt tgt ttc ata aca aaa gcc tta ggc atc tcc tac ggc 144
His Cys Gln Val Cys Phe Ile Thr Lys Ala Leu Gly Ile Ser Tyr Gly
35 40 45
agg aag aag cgg aga cag cgt cga aga cct cct caa ggc agt cag act 192
Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Ser Gln Thr
50 55 60
cat caa gtt tct cta tca aag caa ccc acc tcc caa tcc cga ggg gac 240
His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Arg Gly Asp
65 70 75 80
ccg aca ggc ccg aag gaa tag 261
Pro Thr Gly Pro Lys Glu
85

<210> 4
 <211> 86
 <212> PRT
 <213> Human immunodeficiency virus

<400> 4

Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser
 1 5 10 15

Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe
 20 25 30

His Cys Gln Val Cys Phe Ile Thr Lys Ala Leu Gly Ile Ser Tyr Gly
 35 40 45

Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Ser Gln Thr
 50 55 60

His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Arg Gly Asp
 65 70 75 80

Pro Thr Gly Pro Lys Glu
 85

<210> 5
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 <213> Human immunodeficiency virus

<220>
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 <222> (1)..(261)

<400> 5

atg gag cca gta gat cct aga cta gag ccc tgg aag cat cca gga agt 48
 Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser
 1 5 10 15

cag cct aaa act gct ggt acc aat tgc tat tgt aaa aag tgt tgc ttt 96
 Gln Pro Lys Thr Ala Gly Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe
 20 25 30

cat tgc caa gtt tgt ttc ata aca aaa gcc tta ggc atc tcc tat ggc 144
 His Cys Gln Val Cys Phe Ile Thr Lys Ala Leu Gly Ile Ser Tyr Gly
 35 40 45

agg aag aag cgg aga cag cga cga aga cct cct caa ggc agt cag act 192
 Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Ser Gln Thr
 50 55 60

cat caa gtt tct cta tca aag cag ccc acc tcc caa tcc cga ggg gac 240
 His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Arg Gly Asp

65

70

75

80

ccg aca ggc ccg aag gaa tag
Pro Thr Gly Pro Lys Glu
85

261

<210> 6
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<212> PRT
<213> Human immunodeficiency virus

<400> 6

Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser
1 5 10 15

Gln Pro Lys Thr Ala Gly Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe
20 25 30

His Cys Gln Val Cys Phe Ile Thr Lys Ala Leu Gly Ile Ser Tyr Gly
35 40 45

Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Ser Gln Thr
50 55 60

His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Arg Gly Asp
65 70 75 80

Pro Thr Gly Pro Lys Glu
85

<210> 7
<211> 261
<212> DNA
<213> Human immunodeficiency virus

<220>
<221> CDS
<222> (1)..(261)

<400> 7

atg gag cca gta gat cct aga cta gag ccc tgg aag cat cca gga agt
Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser
1 5 10 15

48

cag cct aaa act gct tgt acc aat tgc tat tgt aaa aag tgt tgc ttt
Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe
20 25 30

96

cat tgc caa gtt tgt ttc ata aca gct gcc tta ggc atc tcc tat ggc
His Cys Gln Val Cys Phe Ile Thr Ala Ala Leu Gly Ile Ser Tyr Gly
35 40 45

144

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agg aag aag cgg aga cag cga cga aga cct cct caa ggc agt cag act 192
Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Ser Gln Thr
50 55 60

cat	caa	gtt	tct	cta	tca	aag	cag	ccc	acc	tcc	caa	tcc	cga	ggg	gac	240
His	Gln	Val	Ser	Leu	Ser	Lys	Gln	Pro	Thr	Ser	Gln	Ser	Arg	Gly	Asp	
65					70					75					80	

ccg aca ggc ccg aag gaa tag 261
Pro Thr Gly Pro Lys Glu
85

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<210> 8
<211> 86
<212> PRT
<213> Human immunodeficiency virus
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<400> 8

Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser
1 5 10 15

Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe
20 25 30

His Cys Gln Val Cys Phe Ile Thr Ala Ala Leu Gly Ile Ser Tyr Gly
35 40 45

Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Ser Gln Thr
50 55 60

His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Arg Gly Asp
65 70 75 80

Pro Thr Gly Pro Lys Glu
85

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<210> 9
<211> 252
<212> DNA
<213> Human immunodeficiency virus
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<220>
<221> CDS
<222> (1) .. (252)
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atg gag cca gta gat cct aga cta gag ccc tgg aag cat cca gga agt 48
Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser
1 5 10 15

cag cct aaa act gct tgt acc aat tgc tat tgt aaa aag tgt tgc ttt 96
Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe

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20					25					30						
cat	tgc	caa	gtt	tgt	ttc	ata	aca	aaa	gcc	tta	ggc	atc	tcc	tat	ggc	144
His	Cys	Gln	Val	Cys	Phe	Ile	Thr	Lys	Ala	Leu	Gly	Ile	Ser	Tyr	Gly	
		35					40					45				
agg	aag	aag	cgg	aga	cag	cga	cga	aga	cct	cct	caa	ggc	agt	cag	act	192
Arg	Lys	Lys	Arg	Arg	Gln	Arg	Arg	Arg	Pro	Pro	Gln	Gly	Ser	Gln	Thr	
	50					55					60					
cat	caa	gtt	tct	cta	tca	aag	cag	ccc	acc	tcc	caa	tcc	ccg	aca	ggc	240
His	Gln	Val	Ser	Leu	Ser	Lys	Gln	Pro	Thr	Ser	Gln	Ser	Pro	Thr	Gly	
65					70					75					80	
ccg	aag	gaa	tag													252
Pro	Lys	Glu														

<210> 10
 <211> 83
 <212> PRT
 <213> Human immunodeficiency virus

 <400> 10

Met	Glu	Pro	Val	Asp	Pro	Arg	Leu	Glu	Pro	Trp	Lys	His	Pro	Gly	Ser
1				5					10					15	

Gln	Pro	Lys	Thr	Ala	Cys	Thr	Asn	Cys	Tyr	Cys	Lys	Lys	Cys	Cys	Phe
			20					25					30		

His	Cys	Gln	Val	Cys	Phe	Ile	Thr	Lys	Ala	Leu	Gly	Ile	Ser	Tyr	Gly
		35					40					45			

Arg	Lys	Lys	Arg	Arg	Gln	Arg	Arg	Arg	Pro	Pro	Gln	Gly	Ser	Gln	Thr
	50					55					60				

His	Gln	Val	Ser	Leu	Ser	Lys	Gln	Pro	Thr	Ser	Gln	Ser	Pro	Thr	Gly
65					70					75					80

Pro Lys Glu

<210> 11
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 <212> DNA
 <213> Human immunodeficiency virus

<220>
 <221> CDS
 <222> (1)..(252)

<400> 11

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atg gag cca gta gat cct aga cta gag ccc tgg aag cat cca gga agt 48
Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser
1 5 10 15

cag cct aaa act gct tgt acc aat tgc tat tgt aaa aag tgt tgc ttt 96
Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe
20 25 30

cat tgc caa gtt tgt ttc ata aca gct gcc tta ggc atc tcc tat ggc 144
His Cys Gln Val Cys Phe Ile Thr Ala Ala Leu Gly Ile Ser Tyr Gly
35 40 45

agg aag aag cgg aga cag cga cga aga cct cct caa ggc agt cag act 192
Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Ser Gln Thr
50 55 60

cat caa gtt tct cta tca aag cag ccc acc tcc caa tcc ccg aca ggc 240
His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Pro Thr Gly
65 70 75 80

ccg aag gaa tag 252
Pro Lys Glu

<210> 12
<211> 83
<212> PRT
<213> Human immunodeficiency virus

<400> 12

Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser
1 5 10 15

Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe
20 25 30

His Cys Gln Val Cys Phe Ile Thr Ala Ala Leu Gly Ile Ser Tyr Gly
35 40 45

Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Ser Gln Thr
50 55 60

His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Pro Thr Gly
65 70 75 80

Pro Lys Glu

<210> 13
<211> 306
<212> DNA
<213> Human immunodeficiency virus

<220>

<221> CDS

<222> (1)..(306)

<400> 13

atg	gat	cca	gta	gat	cct	aac	cta	gag	ccc	tgg	aac	cat	ccg	gga	agt	48
Met	Asp	Pro	Val	Asp	Pro	Asn	Leu	Glu	Pro	Trp	Asn	His	Pro	Gly	Ser	
1				5				10						15		

cag	cct	aca	act	gct	tgt	aac	aag	tgt	tac	tgt	aaa	aag	tgt	tgc	tat	96
Gln	Pro	Thr	Thr	Ala	Cys	Asn	Lys	Cys	Tyr	Cys	Lys	Lys	Cys	Cys	Tyr	
			20					25					30			

cat	tgc	caa	gtt	tgc	ttt	ctg	aac	aaa	ggc	tta	ggc	atc	tcc	tat	ggc	144
His	Cys	Gln	Val	Cys	Phe	Leu	Asn	Lys	Gly	Leu	Gly	Ile	Ser	Tyr	Gly	
		35					40					45				

agg	aag	aag	cgg	aga	cag	cga	cga	gga	act	cct	cag	agc	agt	aag	gat	192
Arg	Lys	Lys	Arg	Arg	Gln	Arg	Arg	Gly	Thr	Pro	Gln	Ser	Ser	Lys	Asp	
	50					55					60					

cat	caa	aat	cct	ata	cca	aag	caa	ccc	ata	ccc	caa	acc	caa	ggg	gtc	240
His	Gln	Asn	Pro	Ile	Pro	Lys	Gln	Pro	Ile	Pro	Gln	Thr	Gln	Gly	Val	
65					70				75						80	

tcg	aca	ggc	ccg	gaa	gaa	tcg	aag	aag	aag	gtg	gag	agc	aag	gca	gag	288
Ser	Thr	Gly	Pro	Glu	Glu	Ser	Lys	Lys	Lys	Val	Glu	Ser	Lys	Ala	Glu	
				85					90					95		

aca	gat	cga	ttc	gat	tag											306
Thr	Asp	Arg	Phe	Asp												
			100													

<210> 14

<211> 101

<212> PRT

<213> Human immunodeficiency virus

<400> 14

Met	Asp	Pro	Val	Asp	Pro	Asn	Leu	Glu	Pro	Trp	Asn	His	Pro	Gly	Ser
1				5				10						15	

Gln	Pro	Thr	Thr	Ala	Cys	Asn	Lys	Cys	Tyr	Cys	Lys	Lys	Cys	Cys	Tyr
			20					25					30		

His	Cys	Gln	Val	Cys	Phe	Leu	Asn	Lys	Gly	Leu	Gly	Ile	Ser	Tyr	Gly
		35					40					45			

Arg	Lys	Lys	Arg	Arg	Gln	Arg	Arg	Gly	Thr	Pro	Gln	Ser	Ser	Lys	Asp
	50					55					60				

His	Gln	Asn	Pro	Ile	Pro	Lys	Gln	Pro	Ile	Pro	Gln	Thr	Gln	Gly	Val
65					70					75					80

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Ser Thr Gly Pro Glu Glu Ser Lys Lys Lys Val Glu Ser Lys Ala Glu
 85 90 95

Thr Asp Arg Phe Asp
 100

<210> 15
 <211> 306
 <212> DNA
 <213> Human immunodeficiency virus

<220>
 <221> CDS
 <222> (1)..(306)

<400> 15
 atg gag cca gta gat cct aga cta gag ccc tgg aag cat cca gga agt 48
 Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser
 1 5 10 15

cag cct aag act gct tgt acc aat tgc tat tgt aaa aag tgt tgc ttt 96
 Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe
 20 25 30

cat tgc caa gtt tgt ttc ata aca aaa ggc tta ggc atc tcc tat ggc 144
 His Cys Gln Val Cys Phe Ile Thr Lys Gly Leu Gly Ile Ser Tyr Gly
 35 40 45

agg aag aag cgg aga cag cga cga aga gct cct caa gac agt cag act 192
 Arg Lys Lys Arg Arg Gln Arg Arg Arg Ala Pro Gln Asp Ser Gln Thr
 50 55 60

cat caa gtt tct cta tca aag caa ccc gcc tcc cag ccc cga ggg gac 240
 His Gln Val Ser Leu Ser Lys Gln Pro Ala Ser Gln Pro Arg Gly Asp
 65 70 75 80

ccg aca ggc ccg aag gaa tcg aag aag aag gtg gag aga gag aca gag 288
 Pro Thr Gly Pro Lys Glu Ser Lys Lys Lys Val Glu Arg Glu Thr Glu
 85 90 95

aca gat ccg gtc gat tag 306
 Thr Asp Pro Val Asp
 100

<210> 16
 <211> 101
 <212> PRT
 <213> Human immunodeficiency virus

<400> 16

Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser
 1 5 10 15

Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe

10/26

20

25

30

His Cys Gln Val Cys Phe Ile Thr Lys Gly Leu Gly Ile Ser Tyr Gly
 35 40 45

Arg Lys Lys Arg Arg Gln Arg Arg Arg Ala Pro Gln Asp Ser Gln Thr
 50 55 60

His Gln Val Ser Leu Ser Lys Gln Pro Ala Ser Gln Pro Arg Gly Asp
 65 70 75 80

Pro Thr Gly Pro Lys Glu Ser Lys Lys Lys Val Glu Arg Glu Thr Glu
 85 90 95

Thr Asp Pro Val Asp
 100

<210> 17
 <211> 306
 <212> DNA
 <213> Human immunodeficiency virus

<220>
 <221> CDS
 <222> (1)..(306)

<400> 17
 atg gag cca gta gat cct aac cta gag ccc tgg aac cat cca gga agt 48
 Met Glu Pro Val Asp Pro Asn Leu Glu Pro Trp Asn His Pro Gly Ser
 1 5 10 15
 cag cct aaa act gct tgt aat aag tgt tat tgt aaa cac tgt agc tat 96
 Gln Pro Lys Thr Ala Cys Asn Lys Cys Tyr Cys Lys His Cys Ser Tyr
 20 25 30
 cat tgt cta gtt tgc ttt cag aca aaa ggc tta ggc att tcc tat ggc 144
 His Cys Leu Val Cys Phe Gln Thr Lys Gly Leu Gly Ile Ser Tyr Gly
 35 40 45
 agg aag aag cgg aga cag cga cga agc gct cct cca agc agt gag gat 192
 Arg Lys Lys Arg Arg Gln Arg Arg Ser Ala Pro Pro Ser Ser Glu Asp
 50 55 60
 cat caa aat ctt ata tca aag caa ccc tta ccc caa acc caa ggg gac 240
 His Gln Asn Leu Ile Ser Lys Gln Pro Leu Pro Gln Thr Gln Gly Asp
 65 70 75 80
 ccg aca ggc tcg gaa gaa tcg aag aag aag gtg gag agc aag aca gag 288
 Pro Thr Gly Ser Glu Glu Ser Lys Lys Lys Val Glu Ser Lys Thr Glu
 85 90 95
 aca gat cca ttc gat tag 306
 Thr Asp Pro Phe Asp
 100

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<210> 18
 <211> 101
 <212> PRT
 <213> Human immunodeficiency virus

<400> 18

Met Glu Pro Val Asp Pro Asn Leu Glu Pro Trp Asn His Pro Gly Ser
 1 5 10 15

Gln Pro Lys Thr Ala Cys Asn Lys Cys Tyr Cys Lys His Cys Ser Tyr
 20 25 30

His Cys Leu Val Cys Phe Gln Thr Lys Gly Leu Gly Ile Ser Tyr Gly
 35 40 45

Arg Lys Lys Arg Arg Gln Arg Arg Ser Ala Pro Pro Ser Ser Glu Asp
 50 55 60

His Gln Asn Leu Ile Ser Lys Gln Pro Leu Pro Gln Thr Gln Gly Asp
 65 70 75 80

Pro Thr Gly Ser Glu Glu Ser Lys Lys Lys Val Glu Ser Lys Thr Glu
 85 90 95

Thr Asp Pro Phe Asp
 100

<210> 19
 <211> 261
 <212> DNA
 <213> Human immunodeficiency virus

<220>
 <221> CDS
 <222> (1)..(261)

<400> 19

atg gat cca gta gat cct aac cta gag ccc tgg aac cat cca gga agt 48
 Met Asp Pro Val Asp Pro Asn Leu Glu Pro Trp Asn His Pro Gly Ser
 1 5 10 15

cag cct agg act cct tgt aac aag tgt tat tgt aaa aag tgt tgc tat 96
 Gln Pro Arg Thr Pro Cys Asn Lys Cys Tyr Cys Lys Lys Cys Cys Tyr
 20 25 30

cat tgc caa gtt tgc ttc ata acg aaa ggc tta ggc atc tcc tat ggc 144
 His Cys Gln Val Cys Phe Ile Thr Lys Gly Leu Gly Ile Ser Tyr Gly
 35 40 45

agg aag aag cgg aga cag cga cga aga cct cct caa ggc ggt cag gct 192

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Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Gly Gln Ala
 50 55 60

cat caa gat cct ata cca aag caa ccc tcc tcc cag ccc cga ggg gac 240
 His Gln Asp Pro Ile Pro Lys Gln Pro Ser Ser Gln Pro Arg Gly Asp
 65 70 75 80

ccg aca ggc ccg aag gaa tag 261
 Pro Thr Gly Pro Lys Glu
 85

<210> 20
 <211> 86
 <212> PRT
 <213> Human immunodeficiency virus

<400> 20

Met Asp Pro Val Asp Pro Asn Leu Glu Pro Trp Asn His Pro Gly Ser
 1 5 10 15

Gln Pro Arg Thr Pro Cys Asn Lys Cys Tyr Cys Lys Lys Cys Cys Tyr
 20 25 30

His Cys Gln Val Cys Phe Ile Thr Lys Gly Leu Gly Ile Ser Tyr Gly
 35 40 45

Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Gly Gln Ala
 50 55 60

His Gln Asp Pro Ile Pro Lys Gln Pro Ser Ser Gln Pro Arg Gly Asp
 65 70 75 80

Pro Thr Gly Pro Lys Glu
 85

<210> 21
 <211> 306
 <212> DNA
 <213> Human immunodeficiency virus

<220>
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 <222> (1)..(306)

<400> 21

atg gaa cta gta gat cct aac tta gat ccc tgg aac cat cca gga agc 48
 Met Glu Leu Val Asp Pro Asn Leu Asp Pro Trp Asn His Pro Gly Ser
 1 5 10 15

cag cct aca act cct tgt acc aaa tgc tat tgt aaa agg tgt tgc ttt 96
 Gln Pro Thr Thr Pro Cys Thr Lys Cys Tyr Cys Lys Arg Cys Cys Phe
 20 25 30

cat tgc caa tgg tgc ttt aca acg aag ggc tta ggc atc tcc tat ggc 144
His Cys Gln Trp Cys Phe Thr Thr Lys Gly Leu Gly Ile Ser Tyr Gly
35 40 45

agg aag aag cgg aga cag cga cga aga act cct caa agc agt cag ata 192
Arg Lys Lys Arg Arg Gln Arg Arg Arg Thr Pro Gln Ser Ser Gln Ile
50 55 60

cat caa gat cct gta cca aag caa ccc tta tcc caa gcc cga ggg aac 240
His Gln Asp Pro Val Pro Lys Gln Pro Leu Ser Gln Ala Arg Gly Asn
65 70 75 80

ccg aca ggc ccg aag gaa tcg aag aag gag gtg gag agc aag gca aag 288
Pro Thr Gly Pro Lys Glu Ser Lys Lys Glu Val Glu Ser Lys Ala Lys
85 90 95

aca gat ccg tgc gat tag 306
Thr Asp Pro Cys Asp
100

<210> 22
<211> 101
<212> PRT
<213> Human immunodeficiency virus

<400> 22

Met Glu Leu Val Asp Pro Asn Leu Asp Pro Trp Asn His Pro Gly Ser
1 5 10 15

Gln Pro Thr Thr Pro Cys Thr Lys Cys Tyr Cys Lys Arg Cys Cys Phe
20 25 30

His Cys Gln Trp Cys Phe Thr Thr Lys Gly Leu Gly Ile Ser Tyr Gly
35 40 45

Arg Lys Lys Arg Arg Gln Arg Arg Arg Thr Pro Gln Ser Ser Gln Ile
50 55 60

His Gln Asp Pro Val Pro Lys Gln Pro Leu Ser Gln Ala Arg Gly Asn
65 70 75 80

Pro Thr Gly Pro Lys Glu Ser Lys Lys Glu Val Glu Ser Lys Ala Lys
85 90 95

Thr Asp Pro Cys Asp
100

<210> 23
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<212> DNA
<213> Human immunodeficiency virus

<220>

<221> CDS

<222> (1)..(306)

<400> 23

atg gac ccg gta gat cct aac cta gag ccc tgg aat cat ccg ggg agt	48
Met Asp Pro Val Asp Pro Asn Leu Glu Pro Trp Asn His Pro Gly Ser	
1 5 10 15	
cag cct aaa act ccc tgt aac aaa tgt tat tgt aaa atg tgt tgc tgg	96
Gln Pro Lys Thr Pro Cys Asn Lys Cys Tyr Cys Lys Met Cys Cys Trp	
20 25 30	
cat tgt caa gtt tgc ttt ctg aac aaa ggc tta ggc atc tcc tat ggc	144
His Cys Gln Val Cys Phe Leu Asn Lys Gly Leu Gly Ile Ser Tyr Gly	
35 40 45	
agg aag aag cgg aag cac cga cga gga act cct cag agc agt aag gat	192
Arg Lys Lys Arg Lys His Arg Arg Gly Thr Pro Gln Ser Ser Lys Asp	
50 55 60	
cat caa aat cct gta cca aag caa ccc tta ccc acc acc aga ggg aac	240
His Gln Asn Pro Val Pro Lys Gln Pro Leu Pro Thr Thr Arg Gly Asn	
65 70 75 80	
ccg aca ggc ccg aag gaa tcg aag aag gag gtg gag agc aag aca gag	288
Pro Thr Gly Pro Lys Glu Ser Lys Lys Glu Val Glu Ser Lys Thr Glu	
85 90 95	
aca gat cca ttc gat tag	306
Thr Asp Pro Phe Asp	
100	

<210> 24

<211> 101

<212> PRT

<213> Human immunodeficiency virus

<400> 24

Met Asp Pro Val Asp Pro Asn Leu Glu Pro Trp Asn His Pro Gly Ser
1 5 10 15
Gln Pro Lys Thr Pro Cys Asn Lys Cys Tyr Cys Lys Met Cys Cys Trp
20 25 30
His Cys Gln Val Cys Phe Leu Asn Lys Gly Leu Gly Ile Ser Tyr Gly
35 40 45
Arg Lys Lys Arg Lys His Arg Arg Gly Thr Pro Gln Ser Ser Lys Asp
50 55 60
His Gln Asn Pro Val Pro Lys Gln Pro Leu Pro Thr Thr Arg Gly Asn
65 70 75 80

Pro Thr Gly Pro Lys Glu Ser Lys Lys Glu Val Glu Ser Lys Thr Glu
85 90 95

Thr Asp Pro Phe Asp
100

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<210> 25
<211> 261
<212> DNA
<213> Human immunodeficiency virus
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<220>
<221> CDS
<222> (1) .. (261)
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<210> 26
<211> 86
<212> PRT
<213> Human immunodeficiency virus
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<400> 26

Met Asp Pro Val Asp Pro Asn Gln Glu Pro Trp Asn His Pro Gly Ser
1 5 10 15

Gln Pro Lys Thr Ala Cys Asn Asn Cys Tyr Cys Lys Lys Cys Cys Tyr
20 25 30

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His Cys Gln Leu Cys Phe Leu Lys Lys Gly Leu Gly Ile Ser Tyr Gly
 35 40 45

Arg Lys Lys Arg Ser Gln Arg Arg Gly Thr Pro Ala Ser Leu Gln Asp
 50 55 60

His Gln Asn Pro Ile Pro Lys Gln Pro Leu Ser Arg Thr Arg Gly Asp
 65 70 75 80

Pro Thr Gly Pro Lys Glu
 85

<210> 27
 <211> 306
 <212> DNA
 <213> Human immunodeficiency virus

<220>
 <221> CDS
 <222> (1)..(306)

<400> 27
 atg gag ctg gta gat cct aac cta gag ccc tgg aat cat ccg gga agt 48
 Met Glu Leu Val Asp Pro Asn Leu Glu Pro Trp Asn His Pro Gly Ser
 1 5 10 15
 cag cct aca act gct tgt agc aag tgt tac tgt aaa ata tgt tgc tgg 96
 Gln Pro Thr Thr Ala Cys Ser Lys Cys Tyr Cys Lys Ile Cys Cys Trp
 20 25 30
 cat tgc caa cta tgc ttt ctg aaa aaa ggc tta ggc atc tcc tat ggc 144
 His Cys Gln Leu Cys Phe Leu Lys Lys Gly Leu Gly Ile Ser Tyr Gly
 35 40 45
 agg aag aag cgg aag cac cga cga gga act cct cag agc agt aag gat 192
 Arg Lys Lys Arg Lys His Arg Arg Gly Thr Pro Gln Ser Ser Lys Asp
 50 55 60
 cat caa aat cct ata cca gag caa ccc cta ccc atc atc aga ggg aac 240
 His Gln Asn Pro Ile Pro Glu Gln Pro Leu Pro Ile Ile Arg Gly Asn
 65 70 75 80
 ccg aca gac ccg aaa gaa tcg aag aag gag gtg gcg agc aag gca gag 288
 Pro Thr Asp Pro Lys Glu Ser Lys Lys Glu Val Ala Ser Lys Ala Glu
 85 90 95
 aca gat ccg tgc gat tag 306
 Thr Asp Pro Cys Asp
 100

<210> 28
 <211> 101
 <212> PRT
 <213> Human immunodeficiency virus

<400> 28

Met Glu Leu Val Asp Pro Asn Leu Glu Pro Trp Asn His Pro Gly Ser
1 5 10 15

Gln Pro Thr Thr Ala Cys Ser Lys Cys Tyr Cys Lys Ile Cys Cys Trp
20 25 30

His Cys Gln Leu Cys Phe Leu Lys Lys Gly Leu Gly Ile Ser Tyr Gly
35 40 45

Arg Lys Lys Arg Lys His Arg Arg Gly Thr Pro Gln Ser Ser Lys Asp
50 55 60

His Gln Asn Pro Ile Pro Glu Gln Pro Leu Pro Ile Ile Arg Gly Asn
65 70 75 80

Pro Thr Asp Pro Lys Glu Ser Lys Lys Glu Val Ala Ser Lys Ala Glu
85 90 95

Thr Asp Pro Cys Asp
100

<210> 29

<211> 306

<212> DNA

<213> Human immunodeficiency virus

<220>

<221> CDS

<222> (1)..(306)

<400> 29

atg gag ccg gta gat cct agc cta gag ccc tgg aac cac ccg gga agt 48
Met Glu Pro Val Asp Pro Ser Leu Glu Pro Trp Asn His Pro Gly Ser
1 5 10 15

cag cct aca act gct tgt agc aat tgt tac tgt aaa atg tgc tgc tgg 96
Gln Pro Thr Thr Ala Cys Ser Asn Cys Tyr Cys Lys Met Cys Cys Trp
20 25 30

cat tgc caa ttg tgc ttt ctg aac aag ggc tta ggc atc tcc tat ggc 144
His Cys Gln Leu Cys Phe Leu Asn Lys Gly Leu Gly Ile Ser Tyr Gly
35 40 45

agg aag aag cgg aga cgc cga cga gga act cct cag agc cgt cag gat 192
Arg Lys Lys Arg Arg Arg Arg Arg Gly Thr Pro Gln Ser Arg Gln Asp
50 55 60

cat caa aat cct gta cca aag caa ccc tta ccc acc acc aga ggg aac 240
His Gln Asn Pro Val Pro Lys Gln Pro Leu Pro Thr Thr Arg Gly Asn
65 70 75 80

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ccg aca ggc ccg aaa gaa tcg aag aag gag gtg gcg agc aag aca gag 288
 Pro Thr Gly Pro Lys Glu Ser Lys Lys Glu Val Ala Ser Lys Thr Glu
 85 90 95

aca gat ccg tgc gat tag 306
 Thr Asp Pro Cys Asp
 100

<210> 30
 <211> 101
 <212> PRT
 <213> Human immunodeficiency virus

<400> 30

Met Glu Pro Val Asp Pro Ser Leu Glu Pro Trp Asn His Pro Gly Ser
 1 5 10 15

Gln Pro Thr Thr Ala Cys Ser Asn Cys Tyr Cys Lys Met Cys Cys Trp
 20 25 30

His Cys Gln Leu Cys Phe Leu Asn Lys Gly Leu Gly Ile Ser Tyr Gly
 35 40 45

Arg Lys Lys Arg Arg Arg Arg Arg Gly Thr Pro Gln Ser Arg Gln Asp
 50 55 60

His Gln Asn Pro Val Pro Lys Gln Pro Leu Pro Thr Thr Arg Gly Asn
 65 70 75 80

Pro Thr Gly Pro Lys Glu Ser Lys Lys Glu Val Ala Ser Lys Thr Glu
 85 90 95

Thr Asp Pro Cys Asp
 100

<210> 31
 <211> 348
 <212> DNA
 <213> Human immunodeficiency virus

<220>
 <221> CDS
 <222> (1)..(348)

<400> 31

atg gat cca gta gat cct gag atg ccc cct tgg cat cac cct gga agt 48
 Met Asp Pro Val Asp Pro Glu Met Pro Pro Trp His His Pro Gly Ser
 1 5 10 15

cag ccc cag acc cct tgt aat aag tgc tat tgc aaa aga tgc tgc tat 96
 Gln Pro Gln Thr Pro Cys Asn Lys Cys Tyr Cys Lys Arg Cys Cys Tyr

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20					25					30						
cat	tgc	tat	gtt	tgt	ttt	gca	agc	aag	ggg	ttg	gga	atc	tcc	tat	ggc	144
His	Cys	Tyr	Val	Cys	Phe	Ala	Ser	Lys	Gly	Leu	Gly	Ile	Ser	Tyr	Gly	
		35					40					45				
agg	aag	aag	cga	cgg	aga	cca	gcc	gct	gct	gcg	agc	cat	cca	gat	aat	192
Arg	Lys	Lys	Arg	Arg	Arg	Pro	Ala	Ala	Ala	Ala	Ser	His	Pro	Asp	Asn	
	50					55					60					
caa	gat	cct	gta	cca	gag	caa	ccc	cca	tcc	atc	acc	aac	agg	aag	cag	240
Gln	Asp	Pro	Val	Pro	Glu	Gln	Pro	Pro	Ser	Ile	Thr	Asn	Arg	Lys	Gln	
65					70					75					80	
aaa	cgc	cag	gag	gaa	cag	gag	aag	gag	gtg	gag	aag	gag	aca	ggc	cca	288
Lys	Arg	Gln	Glu	Glu	Gln	Glu	Lys	Glu	Val	Glu	Lys	Glu	Thr	Gly	Pro	
				85					90					95		
ggg	gga	tac	cct	cgc	cgc	aag	gat	tct	tgc	cac	tgt	tgt	aca	cgg	acc	336
Gly	Gly	Tyr	Pro	Arg	Arg	Lys	Asp	Ser	Cys	His	Cys	Cys	Thr	Arg	Thr	
			100					105					110			
tca	gga	caa	taa													348
Ser	Gly	Gln														
		115														

<210> 32

<211> 115

<212> PRT

<213> Human immunodeficiency virus

<400> 32

Met	Asp	Pro	Val	Asp	Pro	Glu	Met	Pro	Pro	Trp	His	His	Pro	Gly	Ser	
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Gln	Pro	Gln	Thr	Pro	Cys	Asn	Lys	Cys	Tyr	Cys	Lys	Arg	Cys	Cys	Tyr	
			20					25					30			
His	Cys	Tyr	Val	Cys	Phe	Ala	Ser	Lys	Gly	Leu	Gly	Ile	Ser	Tyr	Gly	
		35					40					45				
Arg	Lys	Lys	Arg	Arg	Arg	Pro	Ala	Ala	Ala	Ala	Ser	His	Pro	Asp	Asn	
	50					55					60					
Gln	Asp	Pro	Val	Pro	Glu	Gln	Pro	Pro	Ser	Ile	Thr	Asn	Arg	Lys	Gln	
65					70					75					80	
Lys	Arg	Gln	Glu	Glu	Gln	Glu	Lys	Glu	Val	Glu	Lys	Glu	Thr	Gly	Pro	
				85					90					95		
Gly	Gly	Tyr	Pro	Arg	Arg	Lys	Asp	Ser	Cys	His	Cys	Cys	Thr	Arg	Thr	
			100					105					110			

Ser Gly Gln
115

<210> 33
<211> 15
<212> PRT
<213> Human immunodeficiency virus

<400> 33

Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly
1 5 10 15

<210> 34
<211> 15
<212> PRT
<213> Human immunodeficiency virus

<400> 34

Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser Gln Pro Lys Thr
1 5 10 15

<210> 35
<211> 15
<212> PRT
<213> Human immunodeficiency virus

<400> 35

Trp Lys His Pro Gly Ser Gln Pro Lys Thr Ala Cys Thr Asn Cys
1 5 10 15

<210> 36
<211> 15
<212> PRT
<213> Human immunodeficiency virus

<400> 36

Ser Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys
1 5 10 15

<210> 37
<211> 15
<212> PRT
<213> Human immunodeficiency virus

<400> 37

Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe His Cys Gln
1 5 10 15

<210> 38

<211> 15
<212> PRT
<213> Human immunodeficiency virus

<400> 38

Tyr Cys Lys Lys Cys Cys Phe His Cys Gln Val Cys Phe Ile Thr
1 5 10 15

<210> 39
<211> 15
<212> PRT
<213> Human immunodeficiency virus

<400> 39

Cys Phe His Cys Gln Val Cys Phe Ile Thr Lys Ala Leu Gly Ile
1 5 10 15

<210> 40
<211> 15
<212> PRT
<213> Human immunodeficiency virus

<400> 40

Val Cys Phe Ile Thr Lys Ala Leu Gly Ile Ser Tyr Gly Arg Lys
1 5 10 15

<210> 41
<211> 15
<212> PRT
<213> Human immunodeficiency virus

<400> 41

Lys Ala Leu Gly Ile Ser Tyr Gly Arg Lys Lys Arg Arg Gln Arg
1 5 10 15

<210> 42
<211> 15
<212> PRT
<213> Human immunodeficiency virus

<400> 42

Ser Tyr Gly Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln
1 5 10 15

<210> 43
<211> 15
<212> PRT
<213> Human immunodeficiency virus

<400> 43

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Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Ser Gln Thr His
1 5 10 15

<210> 44
<211> 15
<212> PRT
<213> Human immunodeficiency virus

<400> 44

Arg Arg Pro Pro Gln Gly Ser Gln Thr His Gln Val Ser Leu Ser
1 5 10 15

<210> 45
<211> 15
<212> PRT
<213> Human immunodeficiency virus

<400> 45

Gly Ser Gln Thr His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser
1 5 10 15

<210> 46
<211> 15
<212> PRT
<213> Human immunodeficiency virus

<400> 46

Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Arg Gly Asp
1 5 10 15

<210> 47
<211> 15
<212> PRT
<213> Human immunodeficiency virus

<400> 47

Lys Gln Pro Thr Ser Gln Ser Arg Gly Asp Pro Thr Gly Pro Lys
1 5 10 15

<210> 48
<211> 15
<212> PRT
<213> Human immunodeficiency virus

<400> 48

Gln Ser Arg Gly Asp Pro Thr Gly Pro Lys Glu Gln Lys Lys Lys
1 5 10 15

<210> 49
<211> 386

<212> PRT
<213> Mus musculus

<400> 49

Met Gly Ser Ile Gly Ala Ala Ser Met Glu Phe Cys Phe Asp Val Phe
1 5 10 15

Lys Glu Leu Lys Val His His Ala Asn Glu Asn Ile Phe Tyr Cys Pro
20 25 30

Ile Ala Ile Met Ser Ala Leu Ala Met Val Tyr Leu Gly Ala Lys Asp
35 40 45

Ser Thr Arg Thr Gln Ile Asn Lys Val Val Arg Phe Asp Lys Leu Pro
50 55 60

Gly Phe Gly Asp Ser Ile Glu Ala Gln Cys Gly Thr Ser Val Asn Val
65 70 75 80

His Ser Ser Leu Arg Asp Ile Leu Asn Gln Ile Thr Lys Pro Asn Asp
85 90 95

Val Tyr Ser Phe Ser Leu Ala Ser Arg Leu Tyr Ala Glu Glu Arg Tyr
100 105 110

Pro Ile Leu Pro Glu Tyr Leu Gln Cys Val Lys Glu Leu Tyr Arg Gly
115 120 125

Gly Leu Glu Pro Ile Asn Phe Gln Thr Ala Ala Asp Gln Ala Arg Glu
130 135 140

Leu Ile Asn Ser Trp Val Glu Ser Gln Thr Asn Gly Ile Ile Arg Asn
145 150 155 160

Val Leu Gln Pro Ser Ser Val Asp Ser Gln Thr Ala Met Val Leu Val
165 170 175

Asn Ala Ile Val Phe Lys Gly Leu Trp Glu Lys Ala Phe Lys Asp Glu
180 185 190

Asp Thr Gln Ala Met Pro Phe Arg Val Thr Glu Gln Glu Ser Lys Pro
195 200 205

Val Gln Met Met Tyr Gln Ile Gly Leu Phe Arg Val Ala Ser Met Ala
210 215 220

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Ser Glu Lys Met Lys Ile Leu Glu Leu Pro Phe Ala Ser Gly Thr Met
225 230 235 240

Ser Met Leu Val Leu Leu Pro Asp Glu Val Ser Gly Leu Glu Gln Leu
245 250 255

Glu Ser Ile Ile Asn Phe Glu Lys Leu Thr Glu Trp Thr Ser Ser Asn
260 265 270

Val Met Glu Glu Arg Lys Ile Lys Val Tyr Leu Pro Arg Met Lys Met
275 280 285

Glu Glu Lys Tyr Asn Leu Thr Ser Val Leu Met Ala Met Gly Ile Thr
290 295 300

Asp Val Phe Ser Ser Ser Ala Asn Leu Ser Gly Ile Ser Ser Ala Glu
305 310 315 320

Ser Leu Lys Ile Ser Gln Ala Val His Ala Ala His Ala Glu Ile Asn
325 330 335

Glu Ala Gly Arg Glu Val Val Gly Ser Ala Glu Ala Gly Val Asp Ala
340 345 350

Ala Ser Val Ser Glu Glu Phe Arg Ala Asp His Pro Phe Leu Phe Cys
355 360 365

Ile Lys His Ile Ala Thr Asn Ala Val Leu Phe Phe Gly Arg Cys Val
370 375 380

Ser Pro
385

<210> 50
<211> 8
<212> PRT
<213> Artificial sequence

<220>
<223> Ovalbumin-derived peptide (CFD)

<400> 50

Cys Phe Asp Val Phe Lys Glu Leu
1 5

<210> 51
<211> 8
<212> PRT

<213> Artificial sequence

<220>

<223> Ovalbumin-derived peptide (KVV)

<400> 51

Lys Val Val Arg Phe Asp Lys Leu
1 5

<210> 52

<211> 8

<212> PRT

<213> Artificial sequence

<220>

<223> Ovalbumin-derived peptide (SII)

<400> 52

Ser Ile Ile Asn Phe Glu Lys Leu
1 5

<210> 53

<211> 8

<212> PRT

<213> Artificial sequence

<220>

<223> Ovalbumin-derived peptide (OVA1)

<400> 53

Glu Asn Ile Phe Tyr Cys Pro Ile
1 5

<210> 54

<211> 8

<212> PRT

<213> Artificial sequence

<220>

<223> Ovalbumin-derived peptide (OVA2)

<400> 54

Ala Glu Glu Arg Tyr Pro Ile Leu
1 5

<210> 55

<211> 8

<212> PRT

<213> Artificial sequence

<220>

<223> Ovalbumin-derived peptide (OVA3)

<400> 55 .

Asn	Ala	Ile	Val	Phe	Lys	Gly	Leu
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